

DISTORTION RINGSPOT OF PAPAYA
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Virus diseases are widespread in papaya (*Carica papaya* L.) plantings of the world and are limiting factors of production in certain areas of the Caribbean (1,3,7). Viruses of papaya in Florida were reported in 1940 (8) and became recognized as limiting production in 1960 (6). Of the papaya viruses in Florida (3,4), distortion ringspot is undoubtedly the most serious and most widespread. It is estimated to infect nearly all of the trees in the 500 to 600 acres planted to papaya.

SYMPTOMS. Infected young leaves show vein clearing followed by chlorosis, blistering, and severe narrowing and distortion of one or more leaf lobes (fig. 1A, B). Individual plants of any papaya line may show symptoms varying from mild mottling of the leaves to extreme distortion with no mottling. In addition to a shortening of the petiole, elongated, dark green streaks may develop on the petioles and may extend down the entire trunk.

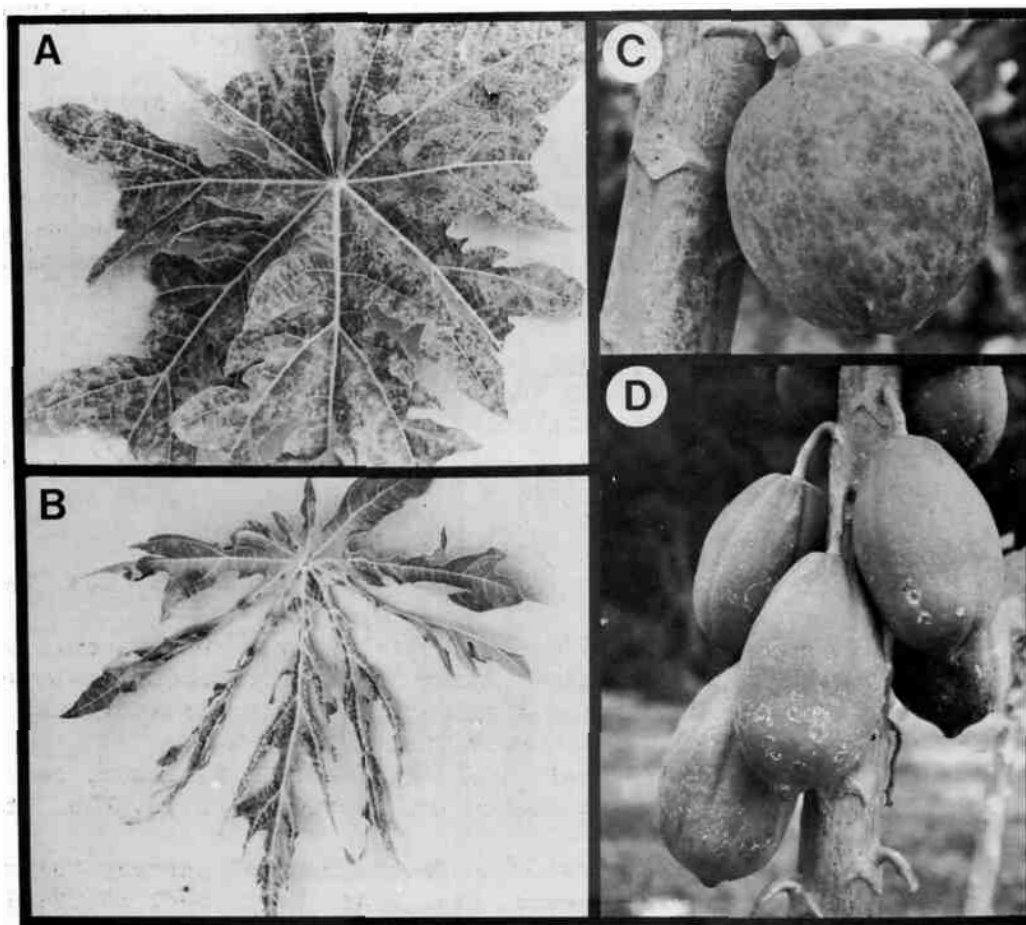


Fig. 1. Papaya plants infected with distortion ringspot virus showing A) mottled leaf, B) severe narrowing and distortion of leaf lobes, C) fruit with greasy-looking spots, and D) fruit with rings and C-shaped markings.

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Infected plants become stunted, and fruit set is reduced severely. The flavor and aroma of infected fruits are inferior to those of healthy papayas. On the fruit, greasy-looking spots, rings, and C-shaped markings may appear (fig. 1C, D).

Variation in the symptomatology may occur according to how long the plant has been infected, the vigor of the plant, temperature, and inherent variation from plant to plant. In general, the earlier in age a plant becomes infected, the more dramatic the effect on its growth. The expression of symptoms in the field is more severe in cool weather and is relatively mild in hot weather (3).

TRANSMISSION. The virus is spread in nature by aphids in a stylet-borne manner. The common green peach aphid, *Myzus persicae* (Sulz.), has been shown to transmit this virus (3,9). Winged adults, which fly from plant to plant and feed enroute, are considered the primary means of spread (3). Seed transmission of the virus has not been reported in studies to date (3).

HOST RANGE. Papaya is the only naturally occurring host reported to be infected with this virus. All types of papaya tested are susceptible as well as several related *Carica* species (3). The virus has been transmitted experimentally to members of two other families, *Chenopodiaceae* and *Curcubitaceae*. Cucurbit hosts include cucumber (*Cucumis sativus* L.), pumpkin (*C. pepo* L.), watermelon (*Citrullus vulgaris*, Schrad.), squash (*Cucurbita pepo* var. *melo* (L.) Alef.), *Cyclanthera pedata* Schrad., and *Melothria pendula* L.

CONTROL. Effective control of this virus problem has not been attained with insecticides, roguing, or isolation of papaya plantings. The use of insecticides for control has not been successful because the insecticides do not kill the aphids quickly enough to prevent infection by the stylet-borne virus. As a precaution, one should avoid pruning healthy trees with tools that have been in contact with diseased plants, since papaya ringspot, as well as the papaya mosaic virus, can be transmitted mechanically (3,4).

All tested varieties of papaya (*C. papaya* L.) are infected by this virus (2,3). However, degrees of tolerance have been obtained in some lines. Development of tolerant lines to reduce losses attributable to this virus is one of the objectives of a breeding program at the University of Florida Agricultural Research and Education Center, Homestead (5).

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